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ORIGINAL

UNITED STATES DEPARTMENT OF ENERGY
PROPOSED PLAN FOR REMEDIAL ACTION
FOR THE GROUNDWATER OPERABLE UNIT
AT THE CHEMICAL PLANT AREA
OF THE WELDON SPRING SITE

Transcript of Proceedings of Public Meeting
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St. Charles, Missouri 63304
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A P P E A R A N C E S

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Panel participants

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BE IT REMEMBERED, that on the 25th day of August, 1999 the above-entitled matter came up for public meeting at the Weldon Spring Site Remedial Action Project, 7295 Highway 94, County of St. Charles, State of Missouri, and the following proceedings were had:

MODERATOR KELLEY: Good evening and welcome to the Weldon Spring Site Remedial Action Project. My name is Rick Kelley and I'll serve as your moderator this evening.

The purpose of the meeting this evening is to inform the public of the proposed plan for remedial action for the groundwater operable unit at the Weldon Spring site and to entertain questions. Following this meeting and a formal comment period, the final outcome will be a Record of Decision for the groundwater remedial action at the Weldon Spring site.

Before we begin, I'd like to go over a few housekeeping items. First of all, we have two exits in this room. We have one here at the front and one at the back. The front, all do you is exit out and go down the hallway that I think most of you came in and go out the doors to the parking lot. To this door you make an immediate right, go out two doors and you'll be outside the building just in case we have to exit the building. The ladies' room and the men's room is down this hallway to your right. And smoking is not permitted in this building.

Because this is a public meeting sponsored by the U.S. Department of Energy, we must

conform to specific federal regulations. And it may seem somewhat formal but it has to be that case because we have to state things in the public record. In order to make sure that the transcription is accurate, we are taping, transcribing the results of this meeting, the comments of this meeting and also we're tape recording it. Copies of the transcription will be available to the public upon request. And just please ask any of us if you wish to have a copy of the transcription.

The agenda for this meeting this evening will consist of remarks from Dan Wall. Dan is the remedial project manager in the Superfund division of the U.S. Environmental Protection Agency. Dan is right here.

Steve McCracken. Steve is the Department of Energy project manager at Weldon Spring. Steve, raise your hand right there.

Then we have as an overview of the proposed plan will be presented by Becky Cato. Becky is the manager of the groundwater operable unit. Becky.

I'll get to the others in just a second. But following our speakers' remarks, a panel which sits in front of you, will answer questions and

respond to comments. So I would ask that you hold your questions until that portion of the program.

Panel members are Steve McCracken, Becky Cato, Dan Wall, whom you just met. And Mary Picel, Mary is the project leader for Argonne National Laboratory which serves as a technical advisor to our project. There's Mary. And with her is Dave Tomasko. Dave is a hydrologist with Argonne National Laboratory.

Now there are a couple of ways that we can entertain questions this evening. You may raise your hand if you have a question or comment and I will recognize you as promptly as I can. Or you may write your questions on a question form that was available to you as you came in. And if you need some of these, we have some here, just raise your hand. These question forms will be collected and be handed to me and your questions will be asked. And if you need those forms, Bob Jaeckel has them and Ann Morrison right over here. So just let us know.

And to make sure all comments and questions will be addressed this evening, we had placed a two-minute limit on each question or comment so that everyone can be represented, but I think with the crowd that we have, we might be able to waive

that somewhat. You may ask your questions and ask as many as you would like; however, I would ask that other people be given consideration. So if you do have a follow-up or a second question, that you wait for everyone so everyone has an opportunity to ask their question this evening.

And when you speak, please give your full name, the name of your organization and your affiliation, and speak so that you can speak loudly and clearly so that it will come across on our transcription and that everyone can hear what you have to say.

Comments received this evening or written comments postmarked on or before September the 1st, 1999 will be considered in the decision-making process. Information as to where you can send these comments is included in your program which was at the front of the room when you came in. Does anyone need programs? Okay.

I think we're going to proceed with the opening comments. And first on our list to make comments -- we're going to deviate a little bit from the program -- we're going to have Dan Wall. Dan.

MR. WALL: Surprised me.

MODERATOR KELLEY: Jump right in.

MR. WALL: Let's see. Just given the nature of the meeting -- well, I'm with the U.S. Environmental Protection Agency Region 7 office in Kansas City. And given the nature of the meeting I thought it would be appropriate just to make a few comments about EPA's role in this process.

Basically it's our job to look over the DOE's shoulder so to speak or work with them as we can to make sure that they propose cleanup actions that are consistent with CERCLA which stands for the Comprehensive Environmental Response Compensation and Liability Act of -- what is it '87 or -- anyway it's more commonly referred to as Superfund because that's kind of difficult to say. We also have the National Contingency Plan which is the implemented regulation for that in a series of policies and guidances which help us interpret that.

So I've been involved on this since the start. And groundwater, decisions with regard to groundwater are inherently generally the most difficult ones to make. I mean we're dealing with more uncertainties. We're dealing with more inferred information. We're relying more on models and greater technological limitations. Lots of things that you don't generally have to face if you're

dealing with source control actions.

So groundwater decisions, it's not uncommon for them to take more time and occur later on than the initial decisions.

What the National Contingency Plan does say about making groundwater decisions, I'm going to really oversimplify and paraphrase. But generally speaking the expectation is that we restore potentially usable groundwater to its beneficial uses or potentially beneficial uses wherever it's reasonable or practical to do so.

And that's subject to a lot of interpretation. You know, what's potentially usable groundwater, what are its beneficial uses, what's reasonable and practicable to do. But we do have lots of guidance along those lines that we fall back on developed by policy makers who try to impose a certain amount of consistency on these decisions and tell us what a good and appropriate way to spend money on these things is.

So I've been working with the DOE on this, and I'm convinced that the proposal that will be presented and is contained in this plan is a reasoned, balanced judgment that's consistent with CERCLA and the National Contingency Plan. It doesn't

mean everybody that was involved with this matter is 100 percent satisfied with everything that's been decided, but I think it's a supportable plan.

The other thing I would just like to say is that Mary Halliday, I see you're out there. She said something last week that kind of disturbed me in that she indicated that she felt that this was a sudden decision and we were rushing into this thing.

And I'd just like to say I'm sorry that you have that impression and I hope that's really not too widespread an impression. I mean we've been studying this and trying to frame this problem for literally years and years. Gathering data, putting in wells, running calculations, studying technologies. So I don't think this is a snap decision by any means and it's unfortunate that maybe that impression might be out there.

MS. HALLLIDAY: It's not a concern.

MR. WALL: Okay.

MR. MCCRACKEN: You've got to say that. I'm going to answer it too.

MR. WALL: So with that I'm done.

MODERATOR KELLEY: Thank you, Dan. Thanks for being with us and thanks for your comments.

Next with opening remarks is the Department of Energy project manager, Steve McCracken.

MR. MCCRACKEN: First of all, I have one thing that I want to clarify. In a letter that I received from Bob Geller with the Missouri Department of Natural Resources I guess it was some time in June, he had suggested that we send special invitations to some of the people in the vicinity of this site, namely the ones that I think health department has been monitoring their wells for years. And it all began as a result of this project.

I told Bob earlier and for the record that I had forgotten to do that. We tried correct it in the last couple days, we couldn't get that done. So what my commitment to Bob and to this meeting is that we will get with those people in the next couple days and tell them what the results of this meeting are or what was said. And I hope that way we can take care of that thing that I forgot to do.

There's a few things that I was asked to do. One is to talk very briefly about the status of the work which I will. And then try to frame the issues that we believe there's not yet consensus on or that the consensus is questionable and try to talk

about those a little bit. And then I'll turn it over to Becky to talk about the proposed plan.

As far as the status of the work, most people here know that as it's related to the quarry, we will be backfilling the quarry within the next year and a half where really it's not a high priority to us and we will do that as the funds are available and not needed for things up here at the site that would keep this work on track. But that will be done probably over the next year and a half or so. We'll remove all the facilities down there and backfill the quarry so that it drains naturally.

We will also be installing the trench I hope this winter. Is it this winter, Yvonne? This fall and winter so that we can begin the pilot test for determining the practicality or feasibility of pump and treat in the quarry for groundwater.

As far as the site, I really just want to use next year as a reference for where we are. By the end of next year we will have all the waste in the disposal cell, we will have it completely covered with clean material. Facilities like the site water treatment plant will be gone. The one little building that we have out back, Building 434, will be gone.

And then there's other things that are peripheral to that. But even under the worst funding scenario that we have seen, we will accomplish at least that. And that's important. Because that means that all the waste will essentially be in the disposal cell by the end of next year and covered.

The only exception to that would be the quarry water treatment plant which we will continue to operate throughout the pilot test, and then that would be dismantled and shipped off-site probably to Clive, Utah or wherever we have to go to get rid of the small amount of contaminated material that would be generated as a result of that cleanup operation.

Now as far as future use goes, as most of you know we met a few weeks ago and laid out the plan for everybody that we hope to -- how we hope to leave the site. And, namely, that's with the interpretation center that we would build, access to the disposal area via a platform that would be up on top of the disposal cell, and then to connect that, with the help of the state, connect that into the Katy trail and the new Busch Wildlife Center. The idea being that with that they'll all work together to attract people and achieve understanding about what's been done here.

Another neat thing of that is that it also allows us to put in exhibits about the whole history of this area all the way back to the towns of Howell, Hamburg and Toonerville which Dan Brown will contribute to with all the displays and things that he has. I don't know if you've seen them but they're extensive. We'll try get the Army to provide us something related to the ordnance works operations and the cleanup that they did. And then of course the uranium ore processing plant operations in the fifties and sixties followed by our cleanup, and finally the primary exhibit which would be the disposal facility itself. And an explanation of what that thing is about.

I am absolutely convinced that that's going to be a very good thing to do. I mean it's how we leave here that people are going to remember us. And we want to be remembered as having done what we needed to do to exit the site and have a good communication strategy when we do that, and that's what I see that doing.

Now as far as issues where consensus is still in question, when I say consensus I mean between the DOE, the state, the EPA, our Citizens' Commission.

There are two things that I will go ahead and recognize as where I think consensus is still in question. I think it will certainly be talked about more as we go along.

One is the feasibility or practicality of a pump and treat operation to treat the nitrates and other contaminants that may be -- that are in the chemical plant area. I'm not going to really talk about that except to recognize it is an issue because Becky is going to get into that a lot and I'm sure we'll talk about it more after that.

The other issue where consensus is still in question is the issue of stewardship and long term institutional care. That is unresolved in my mind, but we are making progress I hope. What I would like to do is just summarize the things that we have done and particularly the things that we've done in the last couple of weeks just to have that in the record.

First of all, as far as what is stewardship; stewardship is good long term care of areas not suitable for free release. In other words, taking care of what we leave behind. That mean the disposal facility itself. It means any impacted areas that you cannot release for free release for any use. It's taking care of that stuff. That's

what stewardship is about.

As it relates to this meeting, stewardship is a broader issue than this action alone. In other words, this action is about groundwater. Stewardship is bigger than that. It's about the other Records of Decision that we've made and how are we going to assure the long term care of the things that are already caught in other Records of Decision.

I think though that the concern is that -- this is on many people's part -- and I'm saying this just to get things on the table the way I think that they are, the concern is in some people's mind that this is the last chance to make stewardship an enforceable requirement. So that's why it's being held up as an important issue now.

Now we held a meeting last week, I think it was August the 18th. We looked at what are the elements of stewardship, are they covered under the CERCLA process already, and therefore enforceable.

We found that many of the elements of stewardship are already under CERCLA and are thus enforceable. That includes operations and maintenance, institutional control, performance monitoring and performance reporting. That does not

though say what those things would consist of and whether people would be satisfied. It simply makes them a requirement to do.

I think in our meeting we did -- at least in my mind I concluded that community outreach was probably not covered in an enforceable way. Probably in my mind too, though, that's the least of the issues. I think we're going to cover that one pretty good before we leave here.

Now where we are now today is that this proposed plan and ultimately this Record of Decision will contain language that requires stewardship planning for this Record of Decision and previous Records of Decision. We've made a statement in the proposed plan to that effect. That would be also included in the proposed plan.

This Record of Decision will also contain language that establishes the institutional control scope for impacted groundwater at the chemical plant. In other words, what we will say is that we will establish institutional controls that preclude the use of the groundwater for any purpose. And that -- well, as long as it's impacted groundwater. And that DOE will enter into discussions with landowners adjacent to us, namely,

the Department of the Army and the Department of Conservation, to put in place similar institutional controls for their land under which the groundwater is impacted by our site.

In addition to that, we said that -- by the way, that's in a letter that I sent to everybody that was in the meeting last week. I don't know if you've gotten it yet. I just sent it out a couple of days ago. If you haven't seen it you will.

We also said in that letter I think that it was either by September the 7th or September the 8th we will issue a straw man proposal which will define the scope and schedule for institutional controls that are required to cover other Records of Decision. We have already made a lot of progress in putting that together and we'll be sending that to you as soon as we can.

Now having said all those things, what's my take on this, in other words, what do I think is still the issue. Well, there's three things.

First of all, my take on things is that stewardship planning should and will be an on-going, highly visible process that takes advantage of the time that we have now and the end of the project in order to make sure that it's complete.

I think that it's clear that delaying the Record of Decision has CERCLA implications that need to be dealt with, and I think that there will continue to be concern until the full scope of stewardship is defined. In other words, I don't think that what we've done has really solved the issue or achieved consensus. I do hope that people agree that some progress has been made. I'm not naive enough to think that that has satisfied everybody's concern.

There are a number of issues that are going to have to be dealt with in order to have a good stewardship plan. For one thing, we don't even really have a good agreement on what constitutes an impacted property. We're going to have to do that. We haven't dealt with things, nor do I know how we will deal with consensus on long term funding assurance, things like that. So it's not going to be easy, and I don't want to lead anybody to believe that I think that we've solved everybody's concern because I don't believe that we have. But I hope that we've made progress. That's what we want to continue to do.

Now I'm not going to talk any more about stewardship. It will probably come up again before

the evening is over, but I did want to try to summarize what I think has gone on in the last couple of days and things that will be in the Record of Decision that we're going to issue.

Now to lead into Becky, one thing that I would like to say is that I think that what we, what we, meaning the DOE the EPA, the state and the public, have accomplished and the decisions we made years ago were really good ones. And the best decision we made I think in 1987 was to come to agree on how to proceed.

And basically what that agreement consisted of is what can we do right away, you know, to stabilize the site, get that stuff out of the quarry, start the buildings coming down, to agree on how we would finally get to a waste treatment and disposal solution which we did in 1993. And we'd already made -- I think it was 1993 -- and we had already made substantial progress in the work because of the idea of getting started with things that made sense.

And, finally, we -- and I think made a very good decision -- to take groundwater and make that last. Because we all know that that's a very difficult thing to make decisions on. I think that

leaving groundwater for now was a good idea. The reason I think that is for the reasons I've said. It's a hard thing to make decisions on. It requires more work than anything else, particularly if the result is not going to be to return the groundwater to its original condition.

Making decisions that involve total cleanup are relatively easy to make -- well, I wouldn't -- they were tough to make. But making decisions that would fall short of that are hard to make and the result -- and by putting it as a separate decision, look at where we are.

I mean where we are is nearly complete with removal and safe storage of all the contamination that was -- basically all the contamination that existed at this site. And I think that we should never lose sight of that, even though I know that we still have some disagreement over groundwater.

Now, Mary, I did not know that Dan had been listening to what you said, but I was too. And you'd made a comment that you felt that we had -- you weren't sure that we hadn't rushed this thing. And I've worked on this today, I'm going to show it whether you say you're still concerned or not.

Because I'm pretty proud of my ability to use my computer and I'm not going to not show it.

To give you some idea, I was trying to figure out how to show you what our time line has been. And these dates are not 100 percent accurate but I think they're close. Our original time line had us completing the feasibility studies and the proposed plan some time around the first of '98. For various reasons here we are in August of 1999 and we're just now getting to that. And a lot of those were good reasons, and I think they contributed to the completeness of what we've done.

Originally we were doing a joint proposed plan and feasibility study with the Army. We decided to separate those activities. I don't even remember why we decided to separate them any more. But nobody complained at the time, and so we did that. That slowed us down a little bit.

With the first draft final and the feasibility study and the proposed plan, the EPA -- we say the EPA requested, but I really think that there was probably a lot of consensus on that, and that is, that we decouple the feasibility study and proposed plan. In other words, quit submitting them both at the same time and start submitting them

separately. To also perform pump tests and to re-evaluate technologies, one of them specifically to address TCE, trichlorethylene. When we issued the final feasibility study, it incorporated the pump tests results and also evaluated the feasibility of groundwater extraction.

Somewhere along there we also agreed to issue a feasibility study supplement in order to do a better analysis of pump and treat and MNA which is an acronym for monitor natural attenuation.

Finally, we issued what we called the draft final proposed plan. I think in the last meeting that we had that we agreed that there were no more feasibility studies required, but we also realized that we're still apart on the issue of feasibility of pump and treat.

So we didn't really rush into this thing in my mind. We spent a lot of time at it. Whether this was really too optimistic in the first place I don't know. But it seems like we have done quite a few things to try to at least come closer together on the issues. So --

MS. HALLIDAY: Thank you.

MR. MCCRACKEN: It's a good picture. And if you want a copy of it I'd be happy to give

anybody here a copy of it. That's all I've got to say. I think with that I'll turn it over to Rick who will turn it over to Becky.

MODERATOR KELLEY: Thank you, Steve, for your comments. And I think it was a wonderfully prepared graph.

MR. MCCRACKEN: I do too.

MODERATOR KELLEY: We're getting into the portion now where we're going to have an overview of the proposed plan and that's going to be presented by Becky.

MS. CATO: Actually I was going to do a little of an overview on the project as a whole, a little bit on the chemical plant, and then lead into the groundwater operable unit with regard to the investigations and risk assessments, and then alternative evaluations.

So more or less the Weldon Spring project is split into four operable units more or less to break them into units that were easy to deal with and also they had different components.

So you've got the chemical plant operable unit which was more or less was contaminated soil removal, foundation removal and disposal cell construction, raffinate pit remediation.

Then we had the quarry bulk waste operable unit which the work was completed in 1995. It's where we removed all the contamination within the quarry. That led into the quarry residuals in which we signed the ROD last year in September which calls out for additional field studies which some have already started in the interceptor trench that Steve discussed will be constructed this fall and winter and be evaluated for the up to two-year period that was discussed.

An important part of the chemical plant that has an impact on our groundwater is the source removal activities that have taken place. We had building dismantlement. I'll run through. Contaminated soil excavation, impounded water removal and raffinate pit removal.

Just for people who don't get to see some of this, we threw some pictures up for you. More or less this is the foundation removal activity and contaminated soil removal activity associated with the buildings. Several impoundments, ash pond, frog pound. This is a picture of ash pond. You can see the black, the ash being removed, and contaminated soils, some backfilling activities that are taking place to complete the remediation of the

area.

Four raffinate pits. You can see in the picture to your left more or less water was treated in the site treatment plants. Some of the dewatering was performed to facilitate removal of debris and also removal of those pits of the contaminated soils. And of course the raffinate that was in the pits was removed for ultimate placement in the disposal cell. Pictured here on the right is an in situ stabilization process that was performed on some of the materials.

So a little bit of an overview on the CERCLA process. We start out with pulling together a work plant sampling plan to identify the objectives of the operable unit, what we're going to do and data gaps we feel we have before a decision can be made. And those feed into both the characterization activities and the evaluation of alternatives.

You can see those go back and forth. And Steve's discussion on how we went and did additional pump tests as part of site characterization activities that led into the development of additional alternatives that we evaluated.

All that pulls together into the

proposed plan which we're discussing this evening at the public meeting. And at this meeting we hope that people's comments and questions get incorporated into our final Record of Decision for the determination of what the final decision is for the project.

We'll move a little bit into groundwater operable unit which is why we're here. Based off our characterization activities we've identified that TCE, nitrate, nitroaromatics and uranium are the groundwater contaminants of interest.

I have a figure here that can kind of give everybody an idea of their location. Let's see. Zone 1 down here at the bottom contains TCE, nitro's, nitrates and uranium. And TCE is also located in the Zone 2 up by the ash pond. In the northwest we have nitrates and nitro's. This is a uranium area. And then the other three remaining are mainly nitroaromatic contamination in groundwater.

TCE was identified in 1996. Some previous sampling had been performed in the 80's. Levels up to about 1300 micrograms per liter had been identified. Since its identification levels have be decreasing, the plume is relatively stable. We've identified its extent.

Nitrate contamination is highest around

the raffinate pits and ash pond. Levels have been running around 1000 milligrams per liter. Although higher levels have been identified, they have been decreasing mainly around raffinate pit 1 and 2 due to remediation activities. Some increases have been identified around the ash pond and the raffinate pits due to activities that have been occurring in that area. And we feel that they'll also decrease similar to those that occurred around raffinate pit 1 and 2.

Nitro aromatic compounds are sporadic. So you can tell we've just identified them in a few small areas.

Then uranium is mainly identified in several wells around the raffinate pits.

We've also sampled springs since they are the discharge points for groundwater in this area. We've identified that nitrate and uranium are the contaminants of interest in the springs at the site.

And being that it was an operative unit dealing with groundwater, extensive investigations have been performed on the hydrogeology. The aquifer of concern is the overburden and the underlying bedrock contamination is primarily in the upper weathered portion of this bedrock unit which is about

20 to 35 -- the upper 20 to 35 feet of the bedrock unit.

The aquifer is considered to be a potentially usable water source, mainly because there are wells outside of our area of impact that do produce some of their water from this Burlington Keokuk limestone.

Through characterization activities, through drilling and testing, we've identified that the aquifer is a limestone aquifer that's characterized with fractures, conduits and paleochannels. These paleo channels are mainly bedrock flows where we've identified that groundwater moves a little bit more preferentially and faster.

We've identified that the groundwater flow characteristics are dependent on the location. And this outlines how quickly the water moves and how it moves from place to place, and it's controlled by the interconnection of these fractures and conduits.

Also the groundwater beneath the chemical plant eventually reaches the fracture zones and discharges to the springs. And we've identified that the flow is primarily horizontal in this weather unit based on characterization of the fractures. And so it has a more preferential move into the

horizontal where it intercepts some of these paleo channels which are connected into the springs system here at the Weldon Spring area.

This is your last hydrogeologic slide. Steve discussed that we did some additional pump tests. We performed a long term pumping test in a location that we considered the most optimistic in which to perform some groundwater extraction. We identified it mainly because of its location in a highly fractured zone and the conductivity, which more or less defines the rate at which groundwater can move, was the highest in those locations.

We've identified from the tests and the data that we obtained that the extraction of groundwater is controlled horizontally and vertically by the structure of the bedrock. Namely, we discussed the paleo channels which are like troughs which are highly fractured features and not so fractured bedrock. And then vertically because we've identified that the conductivity of the rock and the fracture count decreases with depth.

So you have this kind of upper trough feature that has sides and a bottom to it in which the water can be -- extraction can be controlled by.

And we also identified that the

extraction rates cannot be sustained for extended periods of time. As you pumped it down, you observed that the drawdown decreased rapidly as you got out of the weathered portion of the bedrock which is fractured into the unweathered portion of the bedrock. And that also after approximately 19 days of pumping, 3 to 4 months later we still hadn't obtained the original water levels that were observed prior to the test beginning.

Taking the information from the investigations that I gave you a summary on, we did a risk assessment. We ran two different scenarios which are based off of the EPA's prescribed scenarios so it's consistent across the board at all sites.

For the springs we performed a recreational scenario going with the typical land use for the area. This gives you an idea. It was calculated that you would visit for 4 hours at 20 times per year over a 30-year period. Being that you were drinking water from the springs, you would drink about a cup or so and then some ingestion of sediment would occur.

Conclusions from that is that the carcinogenic risk induced by either the radiochemical parameters or the chemical parameters are both below

the risk range that's accepted by EPA.

We also decided to run a residential scenario establishing the possibility of groundwater consumption. And you can see that for a 30-year period for 350 days out of that year you drink 2 liters of water. It was identified that the carcinogenic risk from the radiological parameters are well below the acceptable range by EPA. But the risk due to chemicals, some of the wells do exceed, are outside of that risk range. And the primary driver associated with that is trichlorethylene or TCE.

So a quick summary is that there's 7 zones of contamination present in the chemical plant area. The groundwater from the chemical plant area does discharge to springs. The groundwater in this area is not used for consumption, although it is potentially usable.

I summarized that extraction of groundwater cannot be sustained and that the groundwater extraction rates can vary. We identified from less than a gallon per minute up to 10 gallons per minute. But this was at locations that were within 100 feet of each other, illustrating how the bedrock has a control on how you can remove water.

The major conclusions were that groundwater at the chemical plant is contaminated with TCE, nitrates, nitro aromatics and uranium.

We have said it's considered potentially usable, although it is not used.

And we concluded that the remediation goals for the operable unit are, 1, to restore the groundwater to the beneficial use, and 2, to verify that the effects of source removal which I described in the beginning are positive and that ground contaminant levels will decrease with time.

Getting into the feasibility study. I'm not going to go through each one of these. But we evaluated over thirty potential technologies. They were screened for development of these 9 alternatives of no action is one that's always prescribed as a comparison. We identified long term monitoring. We also identified monitored natural attenuation. Several groundwater extraction methods with different types of treatment. And we also evaluated two in situ treatment methods for -- well, one extraction method for just Zones 1 and 2 which identified the TCE contaminated areas; and then two alternatives to deal with TCE that were in situ methods.

So the proposed plan outlines this

proposed action; that we do treatment of the TCE using an in situ chemical oxidation and that we would combine it with monitor natural attenuation.

And what this comes to be in simpler terms is that there would be an introduction of chemicals into the groundwater to treat the TCE in place and that we would perform long term monitoring of the wells and the springs to confirm that the zones are stable, that they aren't migrating farther, and also that they are decreasing with time.

I was going to go into a little bit of the schedule but the dates are wrong. What we're talking about on engineering mainly is starting not long after the Record of Decision is completed. It would be about a six-month engineering process. You go into procurement. Construction typically is a short term, it's mainly just in construction of injection points and evaluation of long term monitoring locations. And then the injection process is 2 to 3 phases is about a six-month process.

So it would be some time in the year 2000 that this activity would be completed, excluding the long term monitoring portion of the project.

MODERATOR KELLEY: Thank you, Becky, for a very informed presentation, and I might add

masterfully prepared slides.

Before we get into the public comment and question portion of the program, I'd like to introduce some people that are with us this evening. Steve alluded to our Weldon Spring Citizens' Commission. We have three representatives of the commission here this evening I'd like to introduce.

The chairman of the commission is Dr. Glenn Hachey. Dr. Hachey, if you can just kind of -- there we go. Vice chairperson is Dougherty. And technical assistant and member is Nancy Dickens. Thank you.

We're going to deviate just a little bit. I'd like to ask at this time that Bob Geller come forward for some remarks. And, Bob, you have the longest title I think I've ever seen. Bob is Chief of Federal Facilities Section Hazardous Waste Programs for the Missouri Department of Natural Resources. Bob Geller.

MR. GELLER: That's correct. Thank you very much, I appreciate it. And I'd like to say first I appreciate all the comments provided by the Department of Energy and Becky Cato on behalf of the contractors and the EPA.

My position, as you mentioned, I work

with the Department of Natural Resources. And in that position I'm involved with overseeing the investigation and remediation of sites that are contaminated. And involved in cleanups, either by the Department of Defense or Department of Energy in the State of Missouri.

And those cleanups address either contamination involving hazardous and/or radioactive waste. These facilities can either be active Department of Defense or Department of Energy facilities or sites that were formerly used to support our nation's defense effort.

Our mission for the Department of Natural Resources is to preserve and protect the state's natural, cultural and energy resources, and inspire their enjoyment and responsible use for present and future generations.

The Director of the Missouri Department of Natural Resources, Steve Mahfood, is the trustee of the state's natural resources. As such, concerns over groundwater contamination must be addressed and the quality of groundwater ensured. It would be irresponsible to do otherwise.

Tonight we need your help. And although it's a small group, there are citizens here and other

groundwater operable unit.

And we on behalf of the state do consider this our final opportunity to provide verbal comments as well as discussion for this Record of Decision. And we have an opportunity tonight to address specifically the contamination which remains below the chemical plant site that is potentially subject to groundwater migration and theoretically off-site contamination.

For most of you, you're aware of the groundwater contamination resulting from the Department of Defense activities and later the Department of Energy activities at this site has likely existed since the 1950's and 60's, and much of the groundwater contamination has probably already left the site.

However, additional contamination which we're aware of could move to wells or to be discharged through local seeps or springs. And that's a concern we hope to be addressed through this decision.

I won't go through a summary that I prepared. Fortunately, Steve and Becky and Dan kind of covered all the actions that have taken place. But one of the most critical decisions that was made

interested parties in addressing these groundwater concerns as described earlier.

The state, primarily represented by the Department of Natural Resources and other agencies, the Department of Health and Department of Conservation, along with the Citizens' Oversight Commission and other concerned citizens, have all provided input and support for the various actions throughout the cleanup process primarily to ensure a comprehensive approach that considers factors beyond just cost. Often our federal partners, the EPA and the Department of Energy, share in these same concerns.

For this last Record of Decision it's essential that all the views and concerns be raised and that they be addressed in a timely manner.

As stated earlier, tonight we're here to gather comments and provide our perspective on the Department of Energy's plan for the groundwater operable unit at this site.

The Department of Energy, in looking at these comments, is supposed to incorporate them and respond to them in the Record of Decision. And as we've generally referred to the ROD, that ROD will be the determining document for any decisions on the

at this site from our perspective is the 1993 decision at the chemical plant, at which time it was determined that they would site and construct a waste disposal cell here, basically constructing the approximately 1.5 million cubic yard radioactive hazardous waste cell.

As most of you are aware, that's clearly on-going today and the plans are to hopefully close it within the next couple of years.

That decision, while determining what would happen with the waste, also addressed many of the other what's considered vicinity properties that were contaminated as a result of the operations occurring at the chemical plant.

While it provided for cleanup of the soil contaminants or some of the sources, it did not necessarily address any potential groundwater issues, which as Steve mentioned, those issues have been held until this decision.

Throughout the process, I think one of the things that Steve mentioned earlier was talking about how long it took to go through the feasibility study. One of the things that was important was that although they've been collecting data since probably in the 70's and 80's, it wasn't until they were

moving toward completing what's considered a remedial investigation where they tried to collect all the data to determine the nature and extent of the contamination. And that's -- Steve, I don't know if that was included in your slide as far as when the actual remedial investigation was completed. But that's a key point of when the Department of Energy determined that they had sufficient data to then move to a decision-making process.

As you pointed out, coordination occurred between the Department of Defense and the Department of Energy to basically collect the groundwater data, since the groundwater doesn't really care which side of the fence it's on. But it was a coordinated effort, and we support those efforts as well as supporting the effort to break apart the separate response actions.

And I might mention the fact that the Department of Defense is still working on their feasibility study and plans for remedial action within the next several years. They have to go back and collect additional data for areas that they had not fully addressed.

As was mentioned several times, the feasibility study and supplemental feasibility study

form the basis for the analysis of all the alternatives related to the cleanup of the contamination groundwater.

Just to highlight, the studies have to compare the 9 criteria that are outlined within the federal guidance under Superfund. Just to highlight those, is the remedy protective. Each of these criteria that Becky listed, went through the process of comparing. Is it protective, does it meet the existing rules and regulations both state and federal. Will it be effective for the long term.

Is there reduction in the toxicity, mobility or volume through treatment. That's a preference for treatment that EPA has expressed for all cleanups. If it can be treated as opposed to just leaving it in place, that's the preference.

What are the short term risks of putting in any type of remedial activity.

Can the remedy be implemented.

How do the costs compare with one another.

What are the state's concerns. And how does the remedy meet state rules and regulations as well as community acceptance. And this meeting tonight is one of those key points to I guess solicit

community involvement and input into their decision.

As Becky mentioned, the various alternatives that they looked at ranged from a no action alternative, strictly walking away, to looking at a more aggressive cleanup, but not to the extent, that I'm aware of, the extent of complete restoration of the groundwater operable unit.

From the state's perspective, we looked at all the background information and the analysis that the Department of Energy and their contractors have provided in these documents and as well as in the proposed plan. And we're pleased that, as far as a remediation goal, they are planning to restore the aquifer. And that DOE has recommended addressing the trichlorethylene contamination. We support that effort.

However, the documents that I referenced do not adequately evaluate all the alternatives to address the nitrates, completely address all of the solvent contamination, the TCE, some of the explosives, or the radionuclides.

As such, the ability to adequately compare and contrast these alternatives to the Department of Energy's preferred alternative in our perspective cannot be equitably performed.

Our recommendation is that they further evaluate the opportunity to conduct additional groundwater cleanup on site, as well as cleanup of the contaminated water as it discharges off site to the surface water via some of the seeps and springs off the property.

The Department of Energy's proposed plan also includes a site-wide waiver for various state and federal regulations regarding water quality. While the waiver may be appropriate for some of the contaminants due to technical and practicality, the ability to not actually clean those contaminants up, other areas clearly should or could be addressed. And we would request considering or calling for this waiver without establishing appropriate alternative cleanup goals for those various contaminants or attempting to meet the established water quality standards would be irresponsible.

And there are contaminants out there, as we mentioned nitrates other explosives, where there are levels that should be addressed, and we are asking them to look back at those contaminants to meet those goals.

The proposed plan should also address all the contamination that results from the

Department of Energy's activities at the site and does not. Although the Department of Energy, as has been highlighted earlier, has made great strides to control much of the waste material through the bulk waste removal, the construction of the waste disposal cell and many other actions, groundwater and surface water contamination has continued to occur partially because the Department of Energy is self-regulating for radionuclides and is not required to meet the standards set for many others.

The Department of Energy should fully address all discharges of radio nuclides which resulted from their site. And although the state doesn't necessarily consider this to be a takings issue, we also don't consider it a gift from the Department of Energy that we'd like to accept, and we'd ask them to remove their waste from your groundwater.

As the final enforceable decision, there are many components of the previous Records of Decision for the site that must be interfaced into a single comprehensive plan. An overall management and monitoring plan of the groundwater is necessary. The plan must address how performance criteria for the waste disposal cell will affect any contamination

proposed to be left in the groundwater.

Overall, the Superfund laws which govern these types of cleanup barely address waste disposal sites or contamination which likely will remain for thousands of years. We talked about earlier that it does address some long term institutional controls and there is some ability to look at the site on a five-year basis.

However, from our standpoint it was not designed to look at sites that may last for thousands of years. And based on the wastes that we know that are in the waste disposal cell here at Weldon that will exist entombed at the site or will remain as residuals on adjacent property, we consider the time frame of concern more likely to be forever.

As a result, the responsibility to properly manage the area cannot waiver from our standpoint. Some of the major issues and concerns we have related to these types of long term decisions are, as Steve mentioned, a long term funding commitment that includes the appropriate oversight must be established. Clear responsibility and authority for perpetual care of the site-impacted areas must be established.

Long term monitoring and maintenance

must be enforceable should whoever the future stewards are fail to maintain their commitment or the controls are inadequate. Institutional controls must be established for areas not cleaned up to permit unrestricted future use.

In addition, an approach must be developed to adequately address future concerns which we cannot fully envision at this time.

It is our request that the Department of Energy fully address these issues in this last Record of Decision for the site. The current proposed plan does not. We feel that this request is reasonable and a sensible approach based on the limited information we have and the magnitude of the issues.

As an agency and an individual, we are listening because we do care. We're also aware of the long terms costs and impacts which can result by failing to not take all the necessary steps now. The Missouri Department of Natural Resources appreciates the opportunity to comment on this proposed plan, and we will forward our final comments after reviewing any comments from the public as well as the Department of Energy's responses to those comments. Thank you very much.

MODERATOR KELLEY: Thank you.

MR. GELLER: That was more than my 2 minutes.

MODERATOR KELLEY: Thanks, Bob, for your remarks and thanks for representing the state Department of Natural Resources here this evening. And thank you to everyone that's representing state agencies for coming out tonight and we thank you for being here.

Let's begin our public comment and question portion of the meeting. And let me again remind you that if you do have a question, just raise your hand and you will be recognized. If there's several questions being raised at the time, I'll ask you to write down your questions on the question forms and just hand them to either Ann or Bob. They will collect them and give them to me and we will make sure that your question is asked. And I ask you also to please speak loudly and clearly, that you give your name and your title and your affiliation or organization before you give your question.

So at this time let's entertain whatever questions that you might have.

MS. DOUGHERTY: My name is Shannon Dougherty. I'm associated with the Weldon Spring Citizens' Commission.

We were just kind of directing this in general with the DOE and towards the proposed plan. We were wondering what capacity do you see local government or public advisory boards in the institutional controls stewardship process at this particular point in time. You list the EPA, DOE and state as key factors. But no local participation in the draft of the proposed plan and the decision-making process has been listed.

If the public is not named in the ROD, then there's no legal binding power that the public's comments will be considered.

The public has been very involved in this project from the start and will be left with the impact at the site. So the Citizens' Commission on behalf of the public would like to be considered an active participant in this decision-making process, including any decisions, and that goes into even post closure of the site.

This means that the Commission would like the DOE to acknowledge and list the public in the ROD.

MODERATOR KELLEY: So apparently that's a comment that you're making. And anyone would like to address that on our panel?

MR. MCCRACKEN: Shannon, let me try to make sure I understand what you're saying. What you're saying is that the local -- your issue is the stewardship issue, is that primarily where you're coming from?

MS. DOUGHERTY: Basically, yes. Just I mean we were looking and reading who is involved. You know, the DOE, the EPA, the state has been listed. But as far as like local government or even Citizens' Commissions, SSAB board, you know, advisory board in any capacity, there was no documentation in the plan that said as a player, key player --

MR. MCCRACKEN: Yes, I'm trying to figure out why there isn't. I mean typically --

MS. DOUGHERTY: That's what we were curious.

MR. MCCRACKEN: Yes, we would always talk about the involvement of the public in these things. So I'm not really sure that I know the answer to that. But it's one that we need to go look at.

The other thing that you talked about does get to the stewardship issue, which is the post closure of the site. And frankly I don't really know where the stewardship planning process is going to

end. I mean I know when it's going to end, but I don't know what's going to be incorporated into that between now and the end.

And what I'm getting at is that the stewardship plan has got to be a deliberate process that incorporates into it all of the things that we have decided and that we know about the site for institutional controls, performance controls, performance reporting and community involvement. It's got to be included in there.

We don't really know yet what the full scope of it's going to be. We know that all those pieces have to be in there. I think that all gets linked into -- you know, Bob was talking, everything that he said about stewardship I think I agree with. I think. I couldn't write it all down. But I don't think that he said a thing that I don't agree with on stewardship.

It's really boiling down to a timing issue. You know, it's a chicken and egg thing. Is the plan now and the ROD later or is the ROD now and the plan later. And that's what this whole thing is boiling down to. And the reason it's boiling down to that is the feeling that people have that now is the time because of the enforcement capability of Records

of Decision and there may not be any beyond that.

MR. WALL: No, that's not true. I don't believe.

MR. MCCRACKEN: And I was going to expand on that a little bit. I still think that -- I mean a lot of requirements for stewardship are in under CERCLA. What CERCLA does not do is aggregate all these requirements into a single document where it makes sense. And that's what we propose to do. Not just for this Record of Decision, which is really only for groundwater, but for all the Records of Decision.

One of the things that we don't want people to have to do is to go to remedial design, remedial action work plans, for instance, of all the Records of Decision in order to find out what we plan to do as it relates to institutional controls. It will be in there, but you want to aggregate it into a place where people can have easy access to that information and not have to go search through all those documents to find it. And that's what stewardship planning in my mind is all about.

And again what it boils down to is timing. And that is what comes first, Records of Decision or stewardship or something in between. And

I think everybody's making their positions fairly clear.

I mean the state is saying we think that it should come now. Our feeling is that we're trying -- we should begin stewardship planning now but we should end stewardship planning when we have all the information that's required to go into that stewardship plan.

So that's sort of where we're at. I think what we're going to have to do is take everybody's comments and figure out what our response will be. And that's what we'll do. And I don't pretend to know -- I don't know -- another thing we committed to recently was to come up with a scope and schedule for institutional control planning which is another -- which seems to be the key to this whole thing, and that is how do you establish adequate institutional controls that will assure the people here -- because we won't be here -- that will assure those people that what we leave behind will be safe and protected and will be maintained. And we are going to issue again something very soon that I think will at least address that, that will completely address that issue and will become ultimately a section in our stewardship plan.

MR. WALL: May I have a couple words?

MR. MCCRACKEN: Yes, I think I'm rambling.

MR. WALL: I'd just like to add that the CERCLA process does not end with the ROD. It contemplates many, many, long term components. And we have an agreement with the Department of Energy that says that they agree to do CERCLA. So at least if we do our job, you know, from our standpoint we're not going to let the DOE walk away until we get lots of things, operation and maintenance, comprehensive operation and maintenance, planning that will ultimately lead, through experience, to operation and maintenance manuals.

We will require that there be performance monitoring done on this remedy for a considerable period of time until we can establish that it is operating and functioning the way we expected it to. We will require that the DOE establish mechanisms to assure that any institutional controls that they say they're going to do are implemented in a manner that they said they were going to do it.

And we also have a requirement, a five-year review requirement, that says that at least

within 5 years, if not sooner, we will compile all that information and get together and develop the reporting to establish whether or not we are performing in the manner that we had planned, whether there's any new health information that needs to be factored into our decision, and indeed whether or not the decision needs to be altered in any manner.

Now the DOE can agree -- I'll say that the regs don't specifically address what the community involvement component of all that would be. But the DOE can agree to do whatever it wants in that regard. And if they develop CERCLA planning documents that say that they're going to carry out certain things in terms of public outreach, public availability sessions, public comment periods on any of these things, they can certainly do that and we would encourage that, given what seems to be a level of interest in seeing that done.

So I don't think that by any means are we going to go away once this Record of Decision is done. The purpose of the Record of Decision is to establish conceptual performance requirements for what needs to be done. We need to make sure nobody drinks the groundwater. We need to make sure the cell performs in a certain way. We need to make sure

nobody digs in the cell.

It's not going to get at every detail that needs to be accomplished in order to see that that's done. But ultimately they will be answerable to meet whatever those performance standards are in the ROD. So I don't see that the ROD is the end of this thing by any means. I guess I'll end my comments there.

MR. MCCRACKEN: Let me add one thing to that. For instance, we are working now on our environmental -- our monitoring program. And that will include a report that we issue. I think right now we're looking at issuing that annually to the public. That's not a requirement under CERCLA. But we intend to do that anyway.

In our institutional planning we're looking at certifying the institutional controls on an annual basis. So now I've got the opportunity that within that plan along with that we would make those certifications that your institutional controls are still in place.

Those are the kind of things that we need to get into our institutional control and stewardship planning activity. And we intend to. And now the issue is still an issue of timing.

And to Dan's point, all the requirements are there. It's what is going to be the meat to those things and is it reasonable to do it now, try to do it now in order to avoid impacting the Record of Decision. And our feeling -- I mean it's a conclusion everybody has to reach in their own mind.

MODERATOR KELLEY: Is there another question? Mary.

MS. HALLIDAY: Mary Halliday. I wanted to ask Steve, since the groundwater unit and the stewardship plan are so closely intertwined, what are the plans in place to secure funding in the future so it would be like guaranteed funding on-going?

MR. MCCRACKEN: I think that that's a big issue that I know you all are concerned about. Right now there's only one method of funding for these projects. That's annual appropriations by Congress. They are committed to doing that.

But there's some concern that instead there should be a fallback. That didn't happen. If Congress did not appropriate the funds that are necessary to carry out their stewardship responsibility, a fallback of some kind to rely upon. I know of no mechanism right now for that.

I recognize the need though to

facilitate a discussion on that issue. Because it's well above me as to how that would be resolved. That's a national issue that has to be dealt with. It kind of gets back to the issue of timing. These are stewardship issues that are not going to be resolved quickly, they're going to take time.

And frankly that's the reason that we got this stewardship planning process begun early. We didn't begin it early with the idea that we would have it done before this Record of Decision was ready to go out. We did it early because we knew there were big issues like that need to be discussed. And we've got time as long as we don't, you know, let it slide by without somehow figuring out how to facilitate a discussion on those issues.

I agree with you. I mean that's -- to summarize, there's only one way of funding for these projects, that's annual appropriation by Congress. And there's no fallback that I'm aware of and no contemplation of one like trust funds or anything like that. They're very hard to get people to agree with. That doesn't mean it shouldn't be talked about.

MS. HALLIDAY: But annual appropriations are possible on a regular basis if necessary I guess?

MR. MCCRACKEN: Annual appropriations are expected every year to fund the stewardship requirements for this project for this site. They are expected. And that will be -- in fact, we're already working with the DOE office in Grand Junction whose responsibility it will be to request those funds each year to assure that the environmental monitoring activities and the maintenance and things like that get done.

In fact, I'm going there tomorrow to initiate discussions with them, knowing that our target date to turn the site over to them is October of 2002. So we're getting started. And we have time as long as we take advantage of the time we've got to get it done.

But yes, they are expected to do it and EPA expects them to do it. In fact, if we did not, I'm pretty sure that's -- oh, one other thing that is very important to this is that the Federal Facilities Agreement that we currently have extends beyond just the end date of this cleanup project. It extends into the post closure or stewardship period. And that Federal Facilities Agreement has provisions in it with stipulated penalties if DOE does not request the funds that are required to maintain this site.

So it's -- I think everything I'm saying is right. We talked about this the other day, right?

MR. WALL: I think so.

MR. MCCRACKEN: I'm sure it is. Federal Facilities Agreement stays in place and there are --

MR. WALL: It's definitely true that the Federal Facility Agreement covers the life of the project. As long as there is something out here that has a bearing upon protectiveness of the remedy we're covered under that agreement.

The only reason I hesitate is I'm not certain about the stipulated penalties clauses and what they cover. But I think if they agree to something in a CERCLA planning document and don't do it, I would imagine that that's subject to --

MR. MCCRACKEN: I haven't read that thing in a long time. But as I recall it says that we must request the funds required to do the work. And if we do not, there are penalties for that. That doesn't mean Congress will give it to us but we must request it.

MR. WALL: I think if they don't give you the money I think you can -- I mean that might constitute a force majeure or something and allow you to --

MR. MCCRACKEN: The words are in there. I just haven't looked at them for a long time.

MS. HALLIDAY: But does that mean forever? Is there a time frame on that, the Federal Facilities?

MR. WALL: I think it lasts until -- conceptually ideally it lasts until the last five-year review when everybody says there's no more -- there's nothing here that constitutes a potential threat to human health or the environment. So that's, in effect, forever. I mean I don't think the cell is going to be going -- I don't think EPA and DOE will be around forever, but at least theoretically forever.

MR. MCCRACKEN: You can contemplate that the groundwater will attenuate, that things like that will not be a problem forever. But that cell is designed to be there forever. Essentially. Not essentially. I mean that thing -- for the benefit of everybody, we designed it to last 1000 years. And the reason is that how long is it reasonable to say that you design something for. 1000 years was the number picked. As long as that thing is maintained it's intended to last forever.

In fact, the 1000 year period really

begins once maintenance ends. If we lose control of the site, then it's intended that that thing would last 1000 years anyway.

MODERATOR KELLEY: Is there another question?

MR. GARVEY: Mike Garvey with Greenway Network. I guess I have a comment and maybe a question.

There's a certain degree of anxiety for the local citizenry regarding the exit of DOE. And I guess I was looking at some stuff way back and I saw a cover letter that Rod Nelson had wrote in '87. At the time they talked about long term management of the raffinate pits in an existing condition with containment as one of the potential possibilities. And then there was long term management on site in a new disposal cell which was the preferred option. And then of course there was a long term management consideration at another site and no action.

I guess one of the original concerns of the citizens' groups was related to the topography and the course nature and the conduit channels and the springs and the maintenance of a long term monitoring and maintenance in a situation like this. Structural stability.

And then when you couple that with, you know, the half life of uranium and the time frame of a five-year review, is that a long term maintenance.

And I guess a concern that was addressed might be nobody local, that may be salaried to be a consultant in regard to this thing into a certain degree of time that may be more compatible to the anxiety level of the people.

And then that's kind of just a generic question, you know, because if the preferred alternative is long term maintenance and there's no set long term maintenance cemented in concrete, it can be an anxious situation for those that -- it may not be us, but our children, et cetera.

And then I guess the question related to the nitrates that are in the groundwater under the site. And it was said that the extraction rate kind of -- the groundwater, you know, talking about again all the channels and the conduits and the fractures, but there's quite a few wells, there's quite a few monitoring wells, and it would seem that maybe taking from different wells that draw down and looking at the nitrates and maybe trying to treat that may not be an unreasonable scenario with the thought of maybe doing it here for a period of time, here for a period

of time, here for a period of time.

Because the wells are already in place and you've got the water treatment facility there. And I just wonder why specifically the nitrates weren't considered in some type of a pumping and treatment scenario more.

MODERATOR KELLEY: Would someone like to --

MR. WALL: It was seriously considered. I'll let you --

MS. PICEL: I guess we all want to answer. We did look at that alternative of focusing on extracting the groundwater in Zone 1 which is where most of the nitrate that you see in those wells are. And we based our evaluation and calculations -- our calculations were based on trying to simulate the area as porous or ideal conditions, which it's not, because it's really not homogenous. And our calculations still indicate that it would take quite a long period of time to get that out of the groundwater -- out of the ground because of the slow rate of extraction that we've seen from like the pump tests that we did in July of '98, which that pump test was really in that same area of Zone 1 that we talked about.

So from that field results and the calculations, and then adding to that the fact that the site really is not homogenous we really thought it's not feasible to do that, to take that nitrate out of the ground.

MR. WALL: I'd just say something about the model that was used to calculate those remediation time frames is I guess you'd call it a screening level model that presumes the most optimistic conditions, iotropic, homogenous, granular conditions. And assumes pump rates greater than we were actually able to establish for the express purpose of trying to put an optimistic boundary on the potential to remediate that.

And if you can make judgments with regard to those calculations, you know, the actuality is only going to be worse than that in terms of its effectiveness. And I think when you combine the overriding uncertainty about -- you can't really use that model to predict what you could actually do out there. But you know it's not going to be as good as that model.

And so I think that's what the purpose of the model was. And I think when you combine that with the fact that you have a self-mitigating

condition where there's limited potential for exposure, I mean I think Zone 1 is practically under the cell. Those are the kind of factors I think that lead to the decision that it wasn't really feasible to do, or effective to do that.

MODERATOR KELLEY: Anyone else want to address that?

MR. MCCRACKEN: I want to get back to your long term -- your initial comment. You talked about long term maintenance. You know that there is going to be a long term maintenance plan. That five-year review is not the maintenance -- the maintenance plan will require maintenance more frequently than five years. I mean the five years is simply to take a new fresh look at the site and decide whether what you're doing is the right thing to do or do you need to change it. But the maintenance and those activities will be carried on in accordance with the plan that will be, you know, continuous.

Now you talked about hiring a local consultant. That's one of the things, for instance, that we're going to be wanting to talk to the people in Grand Junction tomorrow about is what are the strategies they have for getting the services that

they're going to need to do that kind of stuff. And I will certainly pass on to them what your thoughts are on that because I think that they're good ones.

How they get their services is one of the important things that we have to work on with them so that we know that when we exit the site there's a good plan in place that's already -- you know, that overlaps and is going on. So, yes, I mean we need to have a good plan for how we're going to get the services we need. Because in addition to maintenance, there will be leachate from the cell that has to be dealt with. There will be our little interpretive center that needs to be maintained. All of those are going to require some sort of a strategy to get the services we need to make them operate the way we want them to operate. That's the kind of stuff we're going to start talking about tomorrow.

MODERATOR KELLEY: Is there another question? Yes.

MS. HOLLEY: Yes, Pam Holley, Missouri Department of Health. I was wanting to ask if the stewardship issues cannot be worked out, for example, if we can't find a guarantee of financial resources or we can't find someone who is willing to step up and maintain certain monitoring of the site and

stuff, will we be able then to go back and review these proposed plans and these RODS?

For example, monitored natural attenuation kind of goes hand in hand with stewardship. So if we don't get the stewardship guarantee and we don't have a guarantee of monitored natural attenuation, will we then be able to go back and redo this?

MR. WALL: It's implicit in the process if not outright -- in fact, I think it's outright specified that yes, you will evaluate your decisions periodically, and if things change such that it makes your prior decision not protective, then you would change that decision. So I know that's a pretty speculative question, but I know that the short answer is yes, you can change that. You can change that decision any time you feel that you ought to.

MS. PICEL: That's part of your FFA too, Dan, right? That's part of your FFA where you can require that.

MR. WALL: I mean there's nothing that limits the DOE from amending their decision at any point. And there's nothing that limits us from requiring them to do that at any point if we thought that there was an issue of protectiveness.

But, you know, I don't know what that means for the Missouri Department of Health. But just from our standpoint I think the process contemplates that not everything that could happen is necessarily going to be envisioned at the point we make a decision to move forward and that you can change that decision any time you have new information.

MR. MCCRACKEN: And the key is to make sure that that information is visible and available to the public when it's generated, and that's what we've got to make sure happens. We had a long discussion about this the other day, how does that five-year process include the public. It isn't that clear in the CERCLA how it happens. So we need to make sure that that's one of those extra things that we define in our stewardship planning process as to how we would make sure that that is a public process in some way. So that people are aware that it took place and what the conclusions were.

MR. WALL: But, for example, if you decided that you needed to establish an institutional control that limited people from -- or that said that people should not -- in order for this remedy to remain protective, people should not drink water from

the impacted area, someone is going to need to, you know, drive out here and make sure that no one's putting any wells in. It's not enough just to file some paper with some office to see that that's accomplished.

So I can't say for sure that that will last in perpetuity, but I know at least for the foreseeable future that would be the expectation.

MODERATOR KELLEY: Another question?

MR. GARVEY: Mike Garvey again. It's a kind of a two-part thing. A decision was made to put the disposable cell on this site in understanding the nature of the solution channels and the site. And the disposal cell is made to last 1000 years. The concern I have is whether or not monitoring can pick up a leak in the disposable cell at some point in the future.

And I guess a thought might be to try to early on identify a quick, easy and reasonable and cheap, but maybe timely, handle regarding the time frame. Because the conduits and the paleo channels it seems disperse to a spring. And I'm guessing Bergermeister. Then perhaps that maybe just the radio -- something, whether it be nitrates or radio nuclides could be looked at at that spring to look at

if, in fact, this stuff is attenuating over time which we would expect.

But the other concern from the long haul is maybe with some earthquake activity or settling or whatever, that years down the road that this disposal cell may lose its integrity. And how do you pick that up with the monitoring that's in place, especially if you're looking at it every 5 years and saying yes, it's attenuating, yes, it's attenuating, but then 1000 years from now there's a change.

And is there a way to -- you know, you're always talking about baseline. Well, I would think that there ought to be a way to identify a baseline attenuated pattern and then see if, in fact, there's a leak in the system in the future. And maybe a spring might be the way to look at that. And maybe like a citizens' group might be able to help in that regard that's looking at surface water, the Dardenne Creek, the spring.

Something could be identified that could be easily tested that would not be very expensive that the community could take for their own peace and welfare down the road.

MODERATOR KELLEY: Response anyone?

MS. CATO: Actually on the monitoring --

I could answer the monitoring question. There's two monitoring programs. The disposable cell has its own monitoring program by both the leachate collection system and also a groundwater monitoring program. There's wells that were specifically constructed for that purpose. And Bergermeister spring was also identified as a point to be monitored for the disposable cell.

The groundwater operable unit will have its separate monitoring program which may utilize some of those wells and Bergermeister spring has also already been identified as a location that will be monitored because we know we do have impact to that.

So that has been looked at and that spring has been identified as a long term monitoring location for both the groundwater and leaks from the disposal cell.

MR. WALL: Leachate collection will be monitored. So I mean that would be your first hint I would think if there was some failure in the cap. You'd start picking up leachate, which is not expected.

So I don't think you need to -- I mean as soon as you see something like that happen, you know you have a problem. You don't have to wait and

hope that you might see something in a spring somewhere to know that the cap had failed.

MR. MCCRACKEN: But you'll still be looking at them, Mike. The problem you've got in using the springs and groundwater is that unless you have got a pristine groundwater, it's very difficult to use a groundwater monitoring system as a leak detection system. And that's why you've got that leachate collection system under that thing because that will serve in the near term. And eventually the groundwater would become an important indicator, but at first I mean it might not be because you've got contaminants in the groundwater and you would be sitting there debating constantly is a change an indicator of simply the groundwater contamination attenuating or is it a problem with the cell.

And that's why you've got two different ways of determining whether your cell is performing correctly, two important ways.

MODERATOR KELLEY: Anyone else? Yes.

FROM THE AUDIENCE: I have two questions.

MODERATOR KELLEY: Okay. Your name?

MS. BAKER: I'm sorry. Angela Baker, Missouri Department of Health. The first question is

with regard to the Fenton reagent and the by-products from the Fenton reagent. Are your monitoring wells going to be -- are you going to be analyzing for the by-products from the Fenton reagent in your monitoring?

MS. CATO: TCE degradation products?

MS. BAKER: Yes.

MS. CATO: The design will incorporate a monitoring to verify the performance and also to monitor for breakdown products, yes.

MS. BAKER: The chemical oxidation, the tetrachlorethylene, trichloroethylene, dichloropropane, chloroform and the carbon tetrachloride, those by-products of your TCE treatment?

MS. CATO: Yes.

MR. WALL: The design hasn't been developed yet --

MS. CATO: It hasn't been developed, I mean --

MR. WALL: But certainly hopefully we would address everything that needs to be addressed.

MS. BAKER: Right, that's what we hope.

MR. MCCRACKEN: For the record we'll say here that it will be monitored.

MS. BAKER: Okay.

MR. MCCRACKEN: Right?

MS. CATO: Correct.

MR. MCCRACKEN: Okay.

MS. BAKER: And will we examine those risks also like we did for TCE?

MS. PICEL: Is it Pam? Or Angela? The way we know of the Fenton reagent is that the reaction happens very quickly, which is why this treatment is going to be -- start from the beginning to end be probably a couple months, and the by-products -- I mean in a few hours apparently goes into carbon dioxide and water. It would be very fast and it wouldn't be there to measure. So I don't think we have data to do the risks because they won't be there, those by-products.

MS. BAKER: But you're still going to monitor those anyway?

MS. PICEL: Yes, in the design it would be taken care of.

MS. BAKER: The next question was the possibility for more waivers. We didn't talk about the waivers tonight, but we have -- there are waivers in place for the TCE, the DNT and the nitrates simply because of the length of time, that it's going to

take a long period of time for those to be cleaned up.

But there are also other chemicals that have just as long a cleanup time as those chemicals and waivers weren't placed on those.

So my question is why place waivers on those chemicals specifically when you have other chemicals who have cleanup times that are just as long? And also is it possible that those chemicals also may come up with waivers later? Because of their cleanup time.

MR. WALL: Yes, that's a good point, but the waiver is a legalistic mechanism that allows you to opt out of a legal requirement. And in this case we have -- in this case we're talking about MCL's or maximum contaminant levels or something comparable to that that were required under the Safe Drinking Water Act. They don't have those for every constituent that's in the groundwater. So you only can waive those things that have a such a requirement.

But it is a good point that we need to say something about -- just because it doesn't have an MCL doesn't mean it doesn't have a health effect, and we need to -- and we did consider the health effects of those things in our analysis. And the

bottom line numbers you see on potential risks include those things. But there's no MCL or comparable number that would require a waiver.

MS. BAKER: Okay. Also how -- I don't really know how to ask this question. But how are we going to be assured that every effort has been made to do the remediation of the TCE and the DNT and the nitrates before the technically implementable issues come into place? How do we know every effort has been made to follow through with that one, to implement that, before you say this isn't technically implementable?

MR. WALL: My way will be to review and comment on their plans and try to talk them into meeting my things that I see would be required in that regard, and I would hope that you would do the same.

MODERATOR KELLEY: Anyone else?

MR. MCCRACKEN: I want to raise one other issue.

MODERATOR KELLEY: Sure.

MR. MCCRACKEN: One of the things, for instance, with the Health Department you all are monitoring a number of wells. I mean you're going to probably want to look at your monitoring program to

determine if -- well, in my mind whether some of those could be eliminated. For instance, radioactive materials. In my mind there is no potential that radioactive materials will impact those wells.

MS. BAKER: We've been doing that sampling --

MR. MCCRACKEN: Yes, I know.

MS. BAKER: -- and we've had hits for uranium and radium.

MR. MCCRACKEN: Not from this site.

MS. BAKER: We haven't been able to associate it with a site, but those wells are --

MR. MCCRACKEN: That's the important thing though is that we have such a low level of uranium in groundwater here and that's what we've concluded from our remedial investigation, that the potential for that impacting those wells in my view is none.

MR. WALL: There's a much more logical origin for those as well.

MS. BAKER: But a recommendation for me to cut that out of my sampling wouldn't be in place because I know it's there. Irregardless of where it's coming from, it's there. So I still have to continue to monitor and make recommendations based on

that because over the years we haven't seen it dissipate or go anywhere. It's continually been there. So we continue to monitor. But we've always put the stipulation on that that we cannot say that this is related to the site. We've always put that stipulation on there.

MR. MCCRACKEN: Okay.

MS. BAKER: And then we continue to explain the risks and make recommendations on how they can lower their levels.

MR. MCCRACKEN: Let me modify what I said then.

MS. BAKER: Okay.

MR. MCCRACKEN: Anything that you're doing, those things that you're doing strictly because of the proximity to this site are the things that you would look at in my mind. And if you were doing it strictly for that reason, then I would think that you would want to look at that. If you're doing it for other reasons then that's fine.

But this investigation that we've done is what we try to do to be able to draw conclusions like that. And the levels of uranium in groundwater are extremely low up here at the site.

MR. WALL: And no radium.

MR. MCCRACKEN: And no radium. Mike, to your point on the springs again. You know, the two springs we have are Bergermeister and the one in the southeast drainage. The levels of uranium that are in those springs are higher than what's in the groundwater.

So the implication to me there is there's a strong connection there in the source that's been removed from the site. So you may see some -- I don't think -- I think it would be very difficult to predict and establish a baseline for what you think is going to happen with those springs for that reason. I mean we know they recharge from the groundwater some, but it must not be that entirely because the levels of uranium in those springs is higher than what's in the groundwater.

MR. WALL: I think it probably got there through surface pathways. Uranium is much more soluble on the surface.

MR. MCCRACKEN: Yes, if you look at Bergermeister it responds quickly to storm events. And I think the same thing is true for the one in the southeast drainage.

So I just wanted to come back to your point there. I think if you start trying to say

what's my baseline of what do I expect to see in those springs, it's going to be hard to do that. Doesn't mean they shouldn't be monitored. But there's going to be some change from source removal at some point in time that's unrelated to groundwater. I think I'm saying that right.

MODERATOR KELLEY: Anyone else? I think if we don't have any further questions, last on the agenda, Steve, closing remarks.

MR. MCCRACKEN: Gee, I spent all day working on my graph. I did. And I made people's lives miserable trying to come up with -- make sure that we had the dates and the comments right.

What would I say in closing. I still -- I know that we have -- we do not have consensus on the issues that I addressed earlier. I do not think, though, that any of us are suggesting that our intent is not to assure the safety and health of the public because we all believe that. And frankly it's through these processes that you try to make rational decisions that will assure that and reasonable decisions. And where we are on these consensus issues is trying to decide what is reasonable. And what isn't.

But I don't think that any of us are

suggesting anything that we believe would have any health or safety implications. I think what we're trying to do is determine the feasibility of restoring a natural resource. And I would want to make that point, because I believe that to be true. And that's what you should do.

Because today people ask me constantly why would people have put waste in that quarry the way they did years ago knowing that it would contaminate the groundwater? Didn't they know what that might do to people?

Well, the fact is they studied that and concluded that nobody would be harmed by the contaminated groundwater. And the reason they reached that conclusion is there's no well field down there, there was nobody drinking the water.

On the other hand, today the thing that we would also look at is the impact on the natural resource. And that's a lot of what I think we're talking about tonight is trying to figure out is what is feasible and reasonable as it relates to restoring a natural resource, and that's important.

And so that doesn't mean we're going to agree on everything. And now what we've got to do is figure out how to take these comments and how to move

forward. And I think that's what's going to happen over the next week or two. We have to take this and anything that we receive in writing and respond to that and try to come to a conclusion of some kind.

With that, I for one appreciate everybody coming. With the exception of one person, this gentleman over here, I have known everybody here for quite a long time, at least I think.

FROM THE AUDIENCE: I assume you're talking to me?

MR. MCCRACKEN: You're the only stranger in our midst. I mean we know everybody else.

FROM THE AUDIENCE: I'm more or less a spectator and a complainer. Everything seemed to flow along pretty smoothly so I didn't inject too much. But since you recognized me, why, I was --

MODERATOR KELLEY: May I have your name, sir?

MR. BADER: Douglas Bader, and I'm a affiliated with no group. I live in St. Charles County, specifically in O'Fallon Hills. And therein lies part of my concern. But I attend one of the meetings before, before you started processing the water out of the pit. And the question arose at that time, but I let that slide also, but I'd like to

bring it up now. The water was processed and put in a storage area. And it seems as though there were two other sources of water that entered that storage area. And then it was decided, whether it was parts per million were right, to dump it in the river. And if it were not, why, that would wait until these other two sources added enough water to it that the parts per million were right. Now I know that you know what the parts per million were. I certainly don't.

But the thing that concerns me about that is that EPA and everybody else has gone on parts per million for all contamination, regardless whether it's this site or whether it's automotive or whatever it is. And I have always been of the opinion that it's not the parts per million necessarily, it's the total. And nobody that I know of addresses that.

And one hypothetical thing that I was thinking about is that all of these contaminations, particularly the uranium, uranium doesn't just occur in parts per million around the country. It's concentrated out West some place. And Mother Nature I guess concentrated it there. And if you dump water in the river that is only parts per million, what is to prevent Mother Nature from reconcentrating that

some place else and making one hot potato some place else? Obviously we don't know that.

MR. WALL: Chaos.

MODERATOR KELLEY: Someone like to answer that quickly?

MR. MCCRACKEN: Well, boy, that's a -- when you came out here before was it for the quarry or was it for this plant up here?

MR. BADER: For the quarry.

MR. MCCRACKEN: For the quarry. I will tell you that probably was the most difficult times for me were then. And the reason was that in my view at least it was primarily not because we weren't doing a good job, it was because of our ability to communicate with all those people that are affected by -- that use water downstream of our discharge.

And what that really meant was that people in St. Louis were very concerned about what we were doing, and our ability as a little site to communicate that far away was pretty hard to do. But we tried. And the way we tried to do that was we had multiple independent reviews. We had the state and the EPA convinced that what we were doing was the way to do it.

And we went to a batch discharge system,

which at that time, to gain confidence in what we were doing, what that meant was that we would treat water and we'd store it until we could test it. Now we didn't add things to it.

MR. BADER: As I recall, there were two other sources. I don't recall what it was. But certainly one was rainfall or something of that nature. And the other one, I don't know what it was. But it again appeared to me about the same thing as what Russel Bliss did.

MR. MCCRACKEN: Well, I can assure you it wasn't anywhere close to that.

MR. BADER: Well, we all have our opinions. But he diluted. And that's basically what happened. Aside from I know that you did process the water. Or at least that was the program. But then to add rainwater to it to make it meet the parts per million was not --

MR. MCCRACKEN: No, in fact the only rainwater that could have gotten in that is what fell directly in the pond. And that wouldn't amount to anything as far as being able to dilute it to a level that would be okay for discharge. And besides that, we were testing the water as it came right out of the plant too. And that plant --

MR. BADER: But it was held in a retention pond --

MR. MCCRACKEN: Right.

MR. BADER: -- until it met the parts per million.

MR. MCCRACKEN: Yes -- no. No, no, no, no. It met that going in to the pond.

MR. BADER: What was it doing in the pond then?

MR. MCCRACKEN: That was the point. We could -- a traditional --

MR. BADER: Wouldn't it go directly to the river?

MR. MCCRACKEN: A traditional system would simply discharge directly to the river. And you would test the stream as it's going to the river. The problem we had with was that people downstream did not trust it. And in order to gain -- better gain their trust, we said okay, we won't have a continuous discharge to the river. We will discharge our clean water into these ponds and test it so that we can prove that it meets all of our discharge criteria before we discharge to the river. That way we can't make a mistake. We cannot have an upset in our treatment plant that goes unnoticed for some

period of time before we would discover it and stop it.

And that's why we went to that batch discharge. That batch discharge was intended to be a big contribution to people believing that what we were doing was well done, not the opposite of that. In fact, it was quite the opposite of that. And frankly had we not gone to a batch discharge, I think there's a very good -- I mean we would have had a very difficult time because of the distrust of the downstream users of that water.

MR. BADER: I should have asked the question at that time --

MR. MCCRACKEN: If you want to know more about those things I would encourage you to come out. We will take you through one of those plants or both of them if you want to. We'll show you the results of what went on.

MR. BADER: I'll take you up on that.

MR. MCCRACKEN: We'll be happy to do that. And as far as O'Fallon, when we have our platform that we're going to have up on top of this pile you can see O'Fallon.

MR. BADER: Well, I don't live in O'Fallon.

MR. MCCRACKEN: Oh, you don't?

MR. BADER: I live in O'Fallon Hills which is an unincorporated area of St. Chalres County, just east of --

MR. MCCRACKEN: You might be able to see that too.

MR. BADER: I like high places for some reason.

MODERATOR KELLEY: I think with that we --

MR. MCCRACKEN: Bob had a question.

MODERATOR KELLEY: Okay.

MR. GELLER: Bob Geller, Department of Natural Resources. I just wanted to add that by establishing a batch discharge process it allowed the state as well as St. Charles County to collect the samples of the water and verify that their results were accurate and gave us an opportunity to say stop before they discharged.

MR. BADER: I've heard a lot of talk about our big interest in everybody's health and Missouri DNR was instrumental in getting a sewage system put in in O'Fallon Hills. Soon after it was put in, it started running over into the creek. And I called Missouri DNR and I called the EPA, and

nobody had a thing to say about it. Now just at that time it ran over into this creek for a period of a month approximately. And now just this last week it ran over at least part of the week. And hopefully it won't happen again until it does.

MR. GELLER: I'll be glad to follow up with you on the specifics of that --

MODERATOR KELLEY: Maybe that's a topic for another meeting.

MR. MCCRACKEN: I think it's a great one.

MODERATOR KELLEY: Ladies and gentlemen, that concludes our public meeting this evening. On behalf of the Department of Energy and the project management contractor, M.K. Ferguson and Jacobs Engineering, we want to thank you for coming this evening and please drive safely on your way home. Thank you.

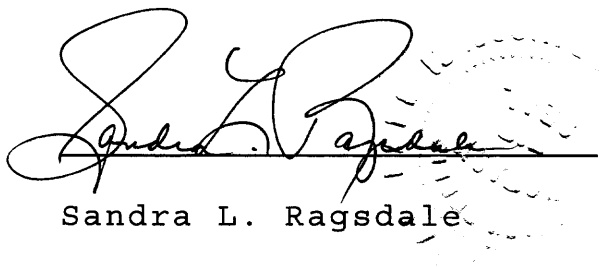
(Whereupon, at 9:03 P.M. the meeting was concluded)

REPORTER'S NOTARIAL CERTIFICATE

I, Sandra L. Ragsdale, a Registered Professional Reporter and Notary Public in and for the State of Missouri, do hereby certify that I caused to be reported in shorthand and thereafter transcribed the foregoing transcript of proceedings.

I further certify that the foregoing is a true, accurate and complete transcript of my shorthand notes so taken as aforesaid, and further, that I am not counsel for, nor in any way related to, any of the parties to this proceeding, nor am I in any way interested in the outcome thereof.

Witness my signature this 7th day of September, 1999. My Commission expires July 21, 2000.



Sandra L. Ragsdale